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UNCLE SAM'S FOREST RANGERS

Episode #35

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11:30 to 12:30 A.M. C.S.T.

OCTOBER 13, 1932 THURSDAY

ORCHESTRA: (Ranger Song)

ANNOUNCER: "Uncle Sam's Forest Rangers".

ORCHESTRA: QUARTETTE

ANNOUNCER: Well, folks, guess where we're going to take you today. - You'll never guess, so I'll have to tell you. Instead of going up on the National Forest where we have been looking in each week on the work of our old friend Ranger Jim Robbins and his young assistant, Jerry Quick, we're going to visit the Forest Products Laboratory today - the headquarters for the United States Forest Service's many investigations into the properties and uses of wood. It's a big job that Uncle Sam's forestry experts are doing there - and a useful one: - finding better ways of converting wood into its many finished products, eliminating waste in its cutting and manufacture, and finding new uses, and better uses, for wood - for the benefit of the timberland owner, the manufacturer, and the consumer. --- Well, over on the Pine Cone District of the National Forest, Ranger Jim and Jerry, in arranging for a new logging operation, came up against a problem of what to do with one of the kinds of trees that has never been much used, and Ranger Jim found it advisable to send Jerry to the Laboratory for complete, first-hand information. Jerry has just arrived; let's see what's going on ---

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JERRY: Pretty fair -- that is, he says he's all right, but I think the strenuous season we had kinda got him down a little.

DIRECTOR: Yes, I know you had quite a time with fire on your Forest. You made out all right though, didn't you?

JERRY: Yes, we held 'em all to small size but one, and we finally got that one stopped too -- but it sure was a tough one. The man that started it was indicted the other day.

DIRECTOR: You got him, eh? -- Well, let's see now, your problem is utilization of a minor species, isn't it?

JERRY: Yes, -- you see, we've got an area on the Forest that's ripe for cutting now, but part of it runs pretty heavy to larch --

DIRECTOR: Not much demand for larch, eh?

JERRY: No. But you see, if we have the operator take out the other stuff and leave all the larch, the next crop of timber will come in heavier to larch than ever, and --

DIRECTOR: I know. What you want to do is help the operator find profitable uses for the larch.

JERRY: That's it. That's just it, sir.

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1. The first of the year was a very dry one, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought.

2. The second of the year was a very wet one, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain.

3. The third of the year was a very dry one, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought.

4. The fourth of the year was a very wet one, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain.

5. The fifth of the year was a very dry one, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought.

6. The sixth of the year was a very wet one, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain.

7. The seventh of the year was a very dry one, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought.

8. The eighth of the year was a very wet one, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain.

9. The ninth of the year was a very dry one, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought. The weather was very hot, and the crops were much injured by the drought.

10. The tenth of the year was a very wet one, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain. The weather was very cold, and the crops were much injured by the rain.

DIRECTOR: Well, Mr. Quick. We've done some work in that field that I think will interest you. You know, your problem is right in line with one of our main aims in forest research - to show the way to profitable marketing of forest crops. You know we have to have a broad and profitable and continuing market for lumber to make sure that our country's timber supply keeps us. To the owner of the forest land it means a practical goal for the growing of future crops of timber, besides meaning improved values for present timber crops. And it means permanence to industries and to communities depending on wood-using industries. -- What we're trying to do, you see, is to show the way by scientific research to the use of wood in all possible forms - to making forest resources serve human needs better.

JERRY: Gee! It's sure a big job you're doing here - and important, too.

DIRECTOR: (chuckles) So it is. -- Well, Mr. Quick - one of our Forest Products Engineers, - Mr. Edgerton - is already prepared to go into your problem with you. I'll send for him now.

(PRESSES BUZZER)

(SOUND OF DOOR)

SECRETARY: (slightly off) Yes, sir?

DIRECTOR: Will you ask Mr. Edgerton to come in here a moment, please?

SECRETARY: Yes indeed. (going off) Right away. (SOUND OF DOOR)

DIRECTOR: Before you get to work on your problem, Mr. Quick, I'd like to have you see our Laboratory here. I think it would be helpful to you to know how we work.

JERRY: All right. I'd sure like to.

DIRECTOR: Mr. Edgerton will show you around.

(SOUND OF DOOR)

EDGERTON: (entering) Hi there.

DIRECTOR: Morning, Paul. -- Say Paul, this is Mr. Quick -- Ranger Jim Robbins' assistant, on the Pine Cove Forest, you know. -- This is Mr. Edgerton, Mr. Quick.

EDGERTON: Sure. Glad to know you, Mr. Quick. We've been expecting you.

JERRY: I'm glad to know you, Mr. Edgerton.

DIRECTOR: Before you dig in on your problem, Paul, I'd suggest you show Mr. Quick around the Laboratory.

EDGERTON: Sure. -- Ready to start, Quick?

JERRY: You bet.

EDGERTON: All right. I'm going to show you some things worth seeing --

(MUSICAL INTERLUDE)

(SOUND OF SAWING LOGS)

EDGERTON: Well, Quick -- here's our log yard and sawmill. I guess more different kinds of logs've passed through the log yard here than any yard in the country.

JERRY: Gee! Look at those big boys. -- That's a Douglas Fir there, isn't it?

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EDGERTON: Yes. And that big one over there is a Sitka spruce. And that one's ponderosa pine, -- they used to call it western yellow pine.

JERRY: Yeah. There's a white pine log: -- and longleaf pine from the South. And there's oak -- and hickory --

EDGERTON: Yep.

(SHRILLER NOTE OF BAND SAW)

EDGERTON: Here's where we cut the logs to size, --

(VOICE: CALLS NUMBERS FOR EACH BOARD AFTER CUT: "Seventeen M -- eighteen A --")

EDGERTON: See, we saw 'em up into numbered boards, and the numbers will follow the pieces through all the tests we give 'em.

JERRY: So you can check on 'em all the way through, huh?

EDGERTON: Yes, and at any time we can refer the board, with every knot and growth ring in it, right back to its original position in the tree. -- Over in there is the wood shop where we can plane or shape or turn material for special tests. -- And over here is the air seasoning yard. (SOUND OF DROPPING PLANKS) Watch out for that stuff just coming out of the mill!

JERRY: Gee! -- (laughs) I would be right in the way.

EDGERTON: (laughs) That's all right. -- Drying wood isn't like drying clothes, you know. Wood has to be dried to fit. If it's dried right, it'll reduce the swelling and shrinking, and cracking of floors and sticking of doors and all that. We're studying wood seasoning here -- to try to help cut down the loss of many millions every year from blue stain and decay, and other seasoning defects.

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JERRY: Yeah. -- Say, isn't this a pile of larch here?

EDGERTON: Yes. That's larch in that pile.

JERRY: It looks good enough here.

EDGERTON: Sure. Larch has its points if it's seasoned and used properly. --

(HEAVY REPEATED CLACKING NOISE, AND OCCASIONAL COUGHING AND WHISTLING AS OF STEAM OR AIR)

JERRY: What's that clacking noise?

EDGERTON: It's the dry kiln. Those are the automatic humidity control valves working. -- See, we have six experimental dry kilns here. The largest one'll take 5,000 feet of lumber. --- When you want quick seasoning for lumber you can use dry kilns -- see?

JERRY: Uh huh.

EDGERTON: Want to go inside this one?

JERRY: Sure.

EDGERTON: All right. --- Look out for that door.

(SOUND OF HEAVY DOOR CLOSING)

JERRY: Whew! Kinda warm inside here, isn't it?

EDGERTON: (laughs) Slightly. It's a hundred and fifty-five degrees in here.

JERRY: Gosh! We'll be well seasoned ourselves, if we stay in here very long.

EDGERTON: Well, it gets pretty hot working in the kilns here sometimes, but as long as you keep wool against the skin -- well, nobody's been badly scalded yet.

JERRY: What's this stuff in here now?

EDGERTON: That's all birch wood. It's being seasoned to give the best services as shoe heels. That's one of our special studies -- You see, over half - sometimes two-thirds - of the weight of green wood is water, and what we're doing here is to find out the way to take it out with the least damage to the wood itself. If it dries too fast, that causes checking. The outside of the wood gets too tight over the inside, and splits. -- A while back, they were having trouble with certain grades of softwoods at the mills all over the country because after they were kiln dried and sent to the planer, most of the knots dropped out. We stopped that by finding just the right heat, air, and moisture schedule to dry the wood and hold the knots in place. We've worked out schedules for drying more than fifty kinds of wood already. -- You know of our Kiln Drying Handbook that we prepared?

JERRY: Sure. -- How about larch? Can it be seasoned all right?

EDGERTON: Yes, larch doesn't offer any serious problem so far as kiln drying is concerned. We worked out its proper schedule long ago. But it has a high moisture content - about 60 per cent - so it requires careful treatment.

JERRY: Hey! There's smoke! Golly, the place ain't on fire, is it?!

EDGERTON: (laughs) No. That's just chemical smoke. One of our research men in another part of the kiln here is using it to trace out the air currents. -- You see, the Laboratory has made a painstaking study of air circulation in every type of kiln. We developed the principle of the internal fan here, you know, that's in use all over the country now. -- Had enough of this?

JERRY: (laughs) I guess so. Gee, I never sweat so much in my life.

EDGERTON: (chuckles) Well, we'll take the air again. "It isn't the heat, it's the humidity".

JERRY: It's both. (SOUND OF HEAVY DOOR) Boy! The cool air sure feels good again!

EDGERTON: (chuckles) Yep. Quite a difference. -- Now I want to show you some of our mechanical testing of wood. We've made more tests of wood on these machines here than have been made on any similar equipment in the world. Half a million tests have been run in this room.

(SOUND OF GEARS OPERATING; VOICES CALLING NUMBERS, OFF)

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EDGERTON: We can put breaking loads of from one to a million pounds on wood samples here, -- and we can test for bending, compressive strength, hardness, tension, splitting, toughness, and all that, besides nail holding ability, twisting strength, and other practical considerations. Through this work, already we know the strength of a hundred and fifty different kinds of woods, -- every kind of any commercial importance in the United States.

(BACKGROUND NOISES: LOW HUM: LARGER NUMBERS BEING CALLED AND ANSWERED)

JERRY: Look, they've got a beam in the big machine there. -- Say, that's larch, isn't it?!

EDGERTON: Yes, that's larch. It's a good sized stick -- sixteen feet long. It's getting pretty well loaded now -- about five thousand pounds to the square inch in outer fiber. (FAINT CRACKLE) Hear that faint crackle? If that tree had any shakes in it, they'd be bound to show up now.

JERRY: It must be a pretty sound stick.

EDGERTON: Yep. A good piece of larch, -- or pine, or fir, for that matter -- is as strong as ordinary steel of the same weight.

JERRY: Gee. I didn't realize that. -- Look, this one can't be so very strong though. Look how it's bending.

EDGERTON: Bending hasn't much to do with strength. You're talking about stiffness. You see, a rod of glass is stiffer than a stick of wood the same size; it won't bend so much -- but the stick of wood will hold more weight than the glass without breaking.

JERRY: Yeah, that's right, too.

EDGERTON: This test here'll give figures for computing both the strength and stiffness of the beam, though. Both are important.

(SHARP CRACK)

JERRY: Hear that? Looks like she's giving way now. (MORE CRACKING) Look!

(VOICES SHOUTING, OFF: "Get ready to take reading!" "Keep the machine balanced!" -- "Now read, she's going!" -- "Okay; speed her up!" -- "Fifty-five thousand, nine hundred pounds!")

(LOUD RENDING CRASH)

VOICE, OFF: "That failure shows compression followed by splintering tension.")

EDGERTON: Well, Quick, you can see the value of beam and column tests like that to find out what kinds of wood serve best for heavy engineering and structural duty.

JERRY: You sure can. -- Gosh, you sure put the pressure on 'em, don't you?

EDGERTON: Yep. There's lots of other tests we can make, too, for other uses -- like testing hardness for wearing surface of floors, and toughness for pick handles, and the like. -- I want you to see our box drum over here now, where we test the efficiency of boxes and crates, and find out the best ways to construct 'em and nail 'em and brace 'em, and all. (RUMBLING AND THUMPING SOUND) -- See, the machine's testing some boxes now. It keeps tumbling them over a series of obstacles inside, till they finally go to pieces.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862. It contains a report on the state of the Union and the progress of the war.

2. The second part of the document is a report from the Secretary of the Treasury, dated January 3, 1862. It contains a report on the state of the Treasury and the progress of the war.

3. The third part of the document is a report from the Secretary of the Interior, dated January 3, 1862. It contains a report on the state of the Interior and the progress of the war.

4. The fourth part of the document is a report from the Secretary of the Navy, dated January 3, 1862. It contains a report on the state of the Navy and the progress of the war.

5. The fifth part of the document is a report from the Secretary of the War, dated January 3, 1862. It contains a report on the state of the War and the progress of the war.

JERRY: It sure treats 'em rough.

EDGERTON: Yes. -- This machine'll test loaded boxes weighing as much as half a ton. (SOUND OF TIN CANS SPILLING) There, that box gave way then -- spilled its contents. Let's have a look at it.

JERRY: All right.

EDGERTON: See, this box is well nailed -- with seven 6-penny nails to the edge.

JERRY: Yeah.

EDGERTON: It did pretty well -- let's see -- three hundred and eighty-five drops before it failed. -- See that box over there? It was exactly like this one, but it was undernailed -- only four nails to the edge -- and it only stood one-seventh as much rough handling.

JERRY: Couldn't stand rough treatment, huh? What a whale of a difference a few nails make.

EDGERTON: That's right. -- You see, with these tests and other tests we make here, the Forest Products Laboratory has standardized the six types of wooden boxes -- and found out the best thickness of lumber to use for boxes of different weights, and the number of nails, and the different kinds of wood that give good service in boxes and crates. Our studies here have saved something like 25 per cent of our national lumber requirements for boxes -- and maybe you didn't know that boxes and crates take about one-sixth of the entire lumber output in this country?

JERRY: No, is that right?

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part is devoted to a detailed analysis of the economic situation.

3. The third part is devoted to a detailed analysis of the social situation.

4. The fourth part is devoted to a detailed analysis of the political situation.

5. The fifth part is devoted to a detailed analysis of the cultural situation.

6. The sixth part is devoted to a detailed analysis of the legal situation.

7. The seventh part is devoted to a detailed analysis of the military situation.

8. The eighth part is devoted to a detailed analysis of the foreign relations.

9. The ninth part is devoted to a detailed analysis of the international situation.

10. The tenth part is devoted to a detailed analysis of the future prospects.

11. The eleventh part is devoted to a detailed analysis of the conclusions.

12. The twelfth part is devoted to a detailed analysis of the recommendations.

13. The thirteenth part is devoted to a detailed analysis of the annexes.

14. The fourteenth part is devoted to a detailed analysis of the bibliography.

15. The fifteenth part is devoted to a detailed analysis of the index.

16. The sixteenth part is devoted to a detailed analysis of the appendixes.

17. The seventeenth part is devoted to a detailed analysis of the tables.

18. The eighteenth part is devoted to a detailed analysis of the figures.

19. The nineteenth part is devoted to a detailed analysis of the maps.

20. The twentieth part is devoted to a detailed analysis of the photographs.

21. The twenty-first part is devoted to a detailed analysis of the illustrations.

22. The twenty-second part is devoted to a detailed analysis of the diagrams.

23. The twenty-third part is devoted to a detailed analysis of the charts.

24. The twenty-fourth part is devoted to a detailed analysis of the graphs.

25. The twenty-fifth part is devoted to a detailed analysis of the statistics.

26. The twenty-sixth part is devoted to a detailed analysis of the data.

EDGERTON: Yes. -- And then we've helped shippers and traffic authorities with a lot of valuable information on plywood and fiber boxes, too.

JERRY: Say, you sure are doing great things here. Gosh, you've sure shown me some eye-openers!

EDGERTON: Oh, you haven't seen anything yet. Wait till I show you how we make our delicate studies on airplane parts and things like that - and all our experiments on wood preservation, and painting - you know, we've tested painted wood panels all over the country to find out how to make paint last longer.

JERRY: Yes, I knew about some of your paint tests.

EDGERTON: Well, you haven't seen our work yet in testing glues and glued joints for furniture and panel work or our work in wood chemistry. -- And you know, we have a complete paper making plant where we study all kinds of problems about wood pulp, and paper manufacture.

JERRY: I certainly want to see that.

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[illegible]

EDGERTON: You will. And then you'll want to see our wood identification laboratory. Thousands of wood samples come in to us here every year to be identified and settle disputes between buyers and sellers of lumber and furniture -- and even sawdust and charcoal. There's a man in the State prison today who owes his conviction, partly, at least, to the fact that some shreds of wood back of his work-bench were found by the Laboratory here to be the same kind of wood as the chips in a bomb. And then another man was exonerated because the chips sticking to his augur were not the same kind of wood as the door where someone had bored out the lock to do some stealing.

JERRY: Say, that's interesting. -- I'm sure learning something today, Mr. Edgerton. I've already made a few notes about larch wood, by the way.

EDGERTON: Things are beginning to look up for larch, eh?

JERRY: I should say.

EDGERTON: Well, things are beginning to look up for a lot of other kinds of wood in this country, too. People are going to see their value, and care for them better. -- Talk about conservation of natural resources -- this research in the efficient use of the products of the forest is one of the most practical conservation propositions I know anything about.

JERRY: Believe me, that's something to think about.

EDGERTON: Want to see some more?

JERRY: I sure do!

(FADEOUT)

ANNOUNCER:

And so do we. -- But it's time to be getting on with the rest of the programs we have for you today. -- The Forest Products Laboratory is maintained by the United States Forest Service, in cooperation with the University of Wisconsin, at Madison, Wisconsin. In its brand new building, recently completed, it is now the largest laboratory devoted exclusively to the study of wood in the world. Here, Uncle Sam's forestry men are constantly seeking to develop more efficient uses and new uses for the products of the forests. And, as you know, conservation is wise use.

We have seen a new angle in the work of Uncle Sam's Foresters today. Next Thursday at this same hour, we shall take you back to the national forest for another look-in on Ranger Jim and Jerry. This program comes to you as a presentation of the National Broadcasting Company with the cooperation of the United States Forest Service.

pmp - 2:30 P. M.
October 6, 1932.

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10. The following table shows the results of the 1998 survey of the 100 largest U.S. corporations. The table shows the percentage of each corporation's total revenue that came from international sales. The table also shows the percentage of each corporation's total revenue that came from the sale of goods and services in the United States.